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Research Patterns and Intellectual Structure of Managerial Auditing Journal

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Research Patterns and Intellectual Structure in the *Managerial Auditing Journal*: A Bibliometric Analysis during 1986-2019

Abstract

Purpose: The *Managerial Auditing Journal* (MAJ) started publication in 1986 and celebrates its 35th year of publication in 2020. The purpose of this study is to provide a detailed bibliometric analysis of the journal's primary trends and themes between 1986 and 2019.

Design/methodology/approach: This study uses the Scopus database to analyse the most prolific authors in the MAJ along with their affiliated institutions and countries; the work also identifies the MAJ articles cited most often by other journals. A range of bibliometric devices are applied to analyse the publication and citation structure of MAJ, alongside performance analysis and science mapping tools. The study also provides a detailed inter-temporal analysis of MAJ publishing patterns.

Findings: The MAJ publishes around 40 articles each year with citations of this work steadily growing over time. The journal has attracted contributors from around the globe, most often affiliated with the United States, the United Kingdom and Australia. Thematic evolution of the journal's themes reveals that it has expanded its scope to include topics such as internal auditing, internal control and corporate governance, whilst co-authorship analysis reveals that the journal's collaboration network has grown to span the globe.

Research limitations/implications: As this study uses data from the Scopus database any shortcomings therein will be reflected in the study.

Originality/value: This study provides the first overview of the MAJ's publication and citation trends as well as the evolution of its thematic structure. It also suggests future directions that the journal might take.

Keywords: Managerial Auditing Journal, Scopus, bibliometrix, h-index, VOSviewer, citation analysis, Gephi, keyword analysis

Paper type: Research Paper

Research patterns and Intellectual Structure in the Managerial Auditing Journal: A Bibliometric Analysis during 1986-2019

1 Introduction

The *Managerial Auditing Journal* (MAJ) is one of the leading journals in the field of auditing and assurance. The journal publishes articles which address the relationship between theory and practice by exploring trends, paradigms and innovative perspectives in the field of auditing and assurance. By developing knowledge bases and highlighting novel practices, the MAJ has provided a forum for dialogue between auditing practitioners and academicians, continually pushes the boundaries of research in the field. The journal was founded in 1986 by Dr. Gerald Vinten of Southampton Business School. In 2006, he passed on the editorship to Dr. Philomena Leung of Macquarie University and Dr. Barry J. Cooper of Deakin University. The journal is currently headed by Dr. Vivek Mande of California State University, Fullerton. Under the aegis of these scholars the journal has grown to become one of the world's most respected outlets for high quality research on auditing and assurance.

The MAJ achieved a CiteScore of 2.7¹ in 2019, implying that articles published between 2016 and 2019 received an average of 2.7 citations, while the journal's SNIP (Source Normalized Impact per Paper) score indicates that the average number of citations for papers in related outlets was 1.271². According to SCImago, MAJ has an *h*-index of 52, indicating that at least 52³ of the articles had received 52 or more citations as of 2019, whilst Clarivate Analytics notes that the journal has an impact factor of 1.870,¹ implying that MAJ publications in 2017 and 2018 received an average of 1.870 citations from journals indexed by Clarivate in 2019 alone.

¹ For details about the Journal's CiteScore and Impact Factor please refer to <https://www.emeraldgrouppublishing.com/journal/maj#indexing-and-rankings>

² The SNIP figure reported here is based on the value shown on the journal's page in the Scopus database

³ For the *h*-index, see <https://www.scimagojr.com/journalsearch.php?q=144642&tip=sid>

The *MAJ* is also highly rated by the Australian Business Deans Council (ABDC), holding a rank of ‘A’ in 2019 that places it amongst the top 24.27% of the 2682 journals on the list. This consistent performance in global journal metrics is testament to the *MAJ*’s quality and reputation.

Topic coverage within the *MAJ* has expanded to include *audit standards, financial regulation, internal and external audit, trends in the auditing profession, risk management, governance, assurance, audit committee characteristics, audit quality* and a range of issues related to *corporate corruption*. The timely and effective manner in which the evolving nature of leading research in the field has been reflected ensures that the *MAJ* continues to be considered a pre-eminent outlet in auditing and accounting. As well as embracing a vast array of emerging topics, the journal has reflected advances in methodological approaches, with the potentiality of meta reviews and case studies explored in special issues. The latter can play an important role in legitimising emerging topics, leading to the development of a greater scientific interest in the areas concerned (Conlon *et al.*, 2006). As one of the leading conduits in auditing research, the *MAJ* has regularly published one-off volumes exploring specific contemporary issues, the first of which appeared in 2005. Table I lists all the special issues published by *MAJ* since its inception.

(Insert Table I about here)

In 2020, the *MAJ* celebrates its 35th anniversary and the present study attempts to provide a retrospective view of the journal’s development and on-going success to commemorate this occasion. It is not uncommon for successful journals to publish articles that provide a retrospective review of trends, outcomes and achievements when reaching significant milestones. Indeed, a series of recent studies (Baker *et al.*, 2019, 2020; Burton *et al.*, 2020; Kumar *et al.*, 2020) have employed innovative bibliometric analysis to address a range of issues

relating to journal quality and broader trends. We follow in this tradition in attempting to answer the following questions relating to the *MAJ*'s content since inception:

RQ1. What are the main patterns in publication and citation?

RQ2. Who are the most prolific authors, institutions and countries?

RQ3. What are the major themes in journal outputs?

RQ4. How have the themes evolved over the journal's lifetime?

RQ5. What has been the collaboration pattern among contributors to the journal?

RQ6. Who are the most important actors within the collaboration network?

The study is structured as follows: the literature review discusses the history and pedigree of journal reviews such as that presented in the current study before, in Section 3, the methodological approach is outlined. The descriptive analysis follows, setting out patterns and primary trends in journal output while Section 5 describes the bibliometric analysis employed to provide a robust scientific examination of the data. The concluding section comments on the findings and suggests potential future directions for the journal as it attempts to build on a remarkable first three and a half decades of success.

2 Literature Review

Leading academic journals often celebrate significant milestones with a special issue, editorial or dedicated study (Schwert, 1993). The use of evolving bibliometric tools has been a common feature in such work, with early examples such as *The Accounting Review* (Heck and Bremser, 1986) and *Journal of Financial Economics* (Schwert, 1993) underpinning more recent publications of this nature, including the *Global Finance Journal* (Baker *et al.*, 2019), the *Journal of Corporate Finance* (Baker *et al.*, 2020a), the *European Journal of Finance* (Burton *et al.*, 2020), *Managerial Finance* (Baker *et al.*, 2020b) and the *Asian Review of Accounting* (Kumar *et al.*, 2020). The bibliometric devices employed in this body of work

reflect their pedigree in the broader accounting and finance field; a brief overview of these studies is now provided.

One of the defining features of this literature is the incorporation of a varied set of analytical techniques. For example, Heck and Bremser (1986), Schäffer and Binder (2008), Coyne *et al.* (2010) and McKee (2010) review the development of citation and publication trends and their impact on scholarship in accounting. More recently, Merigó and Yang (2017) provide a performance analysis of accounting with a focus on influential journals, authors, institutions and countries, alongside an examination of the most impactful articles. In contrast, Uysal (2010) uses network analysis to identify patterns in scholarly communication in the field, while O’Leary (2008) explores the relationship between article citations and appearances in the “top 25” download list for the *International Journal of Accounting Information Systems* and Rosenstreich and Wooliscroft (2009) explore innovations in impact measures, including “g” scores.

A related strand of literature maps publication patterns based on taxonomic classification of studies. For example, Vasarhelyi *et al.* (1988) use quantitative tools to evaluate developments in the accounting literature between 1963 and 1984. Their analysis employs a framework based on discipline, school of thought, research method and mode of reasoning. Many studies of this type have since been published, including a paper by Muehlmann *et al.* (2015), who set out the most cited articles in the *Journal of Emerging Technologies in Accounting* based on methodologies and topic areas. Another common application of bibliometric techniques involves analysis of author characteristics, including work by Fogarty and Jonas (2013) that explores authorship in four leading accounting journals across institutional affiliation, publication track-records and international reach. A similar multifaceted approach to exploring impact is also used by Guffey and Harp (2014) to rank doctoral programs, individual researchers and influential articles in the *Journal of Information Systems*. In contrast,

bibliometric review has rarely been employed to undertake thematic analysis in the accounting area. Whilst this may reflect the quantitative nature of the methodology involved, a number of authors - including Ferramosca and Verona (2020), Kumar *et al.* (2020), and Lindquist and Smith (2009) - have successfully employed bibliometrics in a thematic context in broader examinations of publication and citation trends.

A number of recent studies have analysed thematic structures within individual journals. For example, Merigó *et al.* (2018) explore publication, citation and thematic trends in *Information Science*, while similar investigations have been conducted for the *Journal of Knowledge Management* and *International Business Review* by Gaviria-Marin *et al.* (2018) and Rialp *et al.* (2019) respectively. This expansive approach is adopted here in exploring the history of outputs in the *MAJ* over more than three decades. The present study also investigates co-authorship in the *MAJ*. Formal scholarly collaboration involves two or more authors coming together to produce research that often has stronger scientific outcomes than would otherwise be the case (Acedo *et al.*, 2006); the importance of studying such relationships in attempting to understand research direction in particular fields has long been recognised (Crane, 1969). Acedo *et al.* (2006) point to the importance of co-authorship in management literature, based on analysis of more than 11,000 articles while, more recently, Andrikopoulos and Trichas (2018) and Cisneros *et al.* (2018) utilise a form of social network analysis to identify the characteristics of evolving co-authorship networks. The present study employs key elements of best practice evidenced in the prior literature to explore *MAJ* outputs, in this case by using social network analysis to explore the journal's collaborative culture.

3 Methodology

The bibliometric method is used to measure academic research output on the basis of a range of quantitative tools (Cobo *et al.*, 2011). This form of analysis is typically employed to measure the impact of a specific research area, group of researchers or particular paper (Henderson *et al.*, 2009), with two types of procedure involved: *performance analysis* and *science mapping* (Cobo *et al.*, 2011; Noyons *et al.*, 1999). The former deals with the evaluation of scientific groups (authors, institutions and countries) and the impact of their activity while the latter deals with the analysis of cognitive field structures (Cobo *et al.*, 2011). For the purpose of performance analysis, the present study utilises measures such as publications per year and citations per year as indicators of productivity and impact respectively. A number of other measures are drawn on as well, including citations per publication and *h-index* scores (Alonso *et al.*, 2009) in an attempt to evaluate the *MAJ*'s development over time.

For the purpose of science mapping, the study follows the five-stage process laid out by Cobo *et al.* (2011). The first involves collection of raw data. Here, raw bibliographic data were collected from the Scopus database using the source title "Managerial Auditing Journal," excluding all types of documents except articles, reviews and editorials. This exercise resulted in the identification of 1442 pieces of work. The second stage comprises collection of the items to be analysed, in this case words used based on their availability for each of the articles. The third part of the process is the extraction of the relevant data, followed by the calculation of data relating to similarities between the words collected in the third step, based on the frequency with which they occur together. Finally, the extent of similarity among words is used to permit sub-group clustering and highlight authors' areas of interest.

The clusters obtained using the steps above are characterised by two parameters. The first of these, *Callon's centrality*, indicates the strength of relationships among different clusters (Callon *et al.*, 1991). Callon's centrality for any cluster can be calculated as $c = 10 \times \sum e_{kh}$ where k is the keyword for the cluster in question, h is the keyword of the other

cluster and e_{kh} is their link strength. The summation of the strength of such ties determines a cluster's centrality in the overall keyword network. In contrast, the second parameter, *Callon's density*, refers to the strength of internal ties among the keywords in the cluster (Callon *et al.*, 1991); it is calculated as $d = 100 (\sum e_{ij}/w)$ where i and j are keywords belonging to the cluster, e_{ij} represents link strength and w is the total number of keywords in the cluster. The median and mean values were used to classify the themes into four sub groups (Motor themes, Isolated themes, Basic themes and Emerging themes). The evolution of themes was traced by mapping keywords across four different periods.

Co-authorship was explored to highlight the intricacies of the collaborative networks involved. A range of different measures of centralities can be used to identify the important actors in a collaboration network. These include:

- *Degree of centrality*, which reflects the number of relational ties a node has in a given network.
- *Weighted degree of centrality*, calculated by multiplying the total number of relational ties by the strength of each tie.
- *Betweenness centrality*, relating to a node's ability to bring together otherwise unconnected groups of nodes. These nodes are instrumental in the flow of information in a social network. The measure is calculated as the total number of shortest paths passing through the target node (denoted by $\delta_{v,w}(u)$) divided by the total number of shortest paths which exist between any pair of nodes in the network (denoted by $\delta_{v,w}$).

$$B(u) = \sum \frac{\delta_{v,w}(u)}{\delta_{v,w}}$$

- *Eigenvector Centrality*, based on the assumption that a node is more important in a network if it is connected to other highly connected nodes. It is calculated as

$$x_i = \frac{1}{\lambda} \sum_{j \in M(i)} x_j$$

where $M(i)$ is the set of neighbours of i and λ is a constant.

For the purpose of science mapping, the present study employs the Bibliometrix tool (Aria and Cuccurullo, 2017) while for network analysis VOSviewer (van Eck and Waltman, 2010) and Gephi (Bastian *et al.*, 2009) was used. On the basis of the discussion presented in this and the previous section, Figure 1 summarises the study's research questions, methodology, analytical tools and proposed contributions.

(Insert Figure 1 about here)

4 Descriptive Analysis

Table II details annual trends in publication and citation metrics for the *MAJ* between 1986 and 2019 (therefore addressing RQ1). The journal's growth in terms of output levels has varied across maturity stages, with rapid (13.87%) average annual growth rate in its first decade (1986-1995) before settling to a figure of 2.86% between 1996 and 2005. During its third decade (2006-2015) the journal saw a small annual fall of -5.03%, but over the last four years (2016-2019) the journal has seen a positive average growth rate of 4.31% with 45 papers published in the last of these years. As regards citations of *MAJ* research, Table II also indicates that growth has been much more even with a consistent annual rate of around 20%. While the journal had no cited papers in 1986, its year of inauguration, more than 600 *MAJ* papers were cited in both 2018 and 2019.

(Insert Table II about here)

Table IIIa, IIIb and IIIc provide information regarding the most common contributing authors, institutions and countries respectively in the *MAJ* between 1986 and 2019 (RQ2). Inspection of Table IIIa reveals that the highest contributing author (in terms of publication

number, but not citations, where the most prolific authors featured only fourth and fifth) is Roger K. Doost, with 28 articles, followed by Gerald Vinten and Malcolm Smith with 26 and 21 articles respectively. Table IIIb reveals that the institutions which contributed the most to the journal are RMIT University and Clemson University, with 31 articles each, followed by Deakin University with 24. Again, the citation data differ in some respects from the output data; Deakin led in terms of overall total, with the institution attaining the highest number per paper (Universiti Teknologi MARA) not featuring in the top 20 in terms of output number. Table IIIc indicates that the most prolific contributing country (and highest number of total citations) to the journal to date is the United States (US) (537 contributions) followed by the United Kingdom (UK) and Australia with 288 and 186 articles respectively.

(Insert Table IIIa, IIIb and IIIc about here)

To permit identification of inter-temporal patterns in the output data, Table IV provides information about the institutions and countries that produced the most prolific authorship in the *MAJ* in four periods between 1986 and 2019. The highest contributor in the first ten-year period (1986-1995) was Gerald Vinten, followed by Roger K. Doost (1996 to 2005), Philomena Leung (2006-2015) and Mohammad I Azim (2016-2019). Similarly, no institution emerges as a dominant contributor throughout all the periods; City University of London led in the first period (1986-1995), followed by Clemson University (1996-2005), Deakin University (2006-2015) and RMIT University (2016-2019). Unlike with the author and institutional data, Table IV indicates that one nation, the US, dominated in terms of national origin across all periods, followed by the UK, until the last two periods when Australian-based authorship grew to surpass the British total. As with Table III, the data in Table IV indicate some differences between output and citation numbers; notably, Australia has led the US in terms of the latter since 2006.

(Insert Table IV about here)

Table V presents a list of the most cited *MAJ* articles. The data in the table reveal that Rahman and Mohamed Ali's (2006) paper "Board, audit committee, culture and earnings management: Malaysian evidence" has been cited most often, on 221 occasions, followed by Huafang and Jianguo's "Ownership structure, board composition and corporate voluntary disclosure: Evidence from listed companies in China" (2007) and Antony's "Six Sigma in the UK service organisations: Results from a pilot survey" (2004) which, at the time of writing, had been cited 158 times each.

(Insert Table V about here)

Table VI details information regarding the authors, countries, institutions and journals that have cited *MAJ* papers most regularly. According to the table, Samuel R. Devadasan has cited *MAJ* work more often than has any other author. The US and Universiti Teknologi MARA are the country and institution respectively that cite the *MAJ* most frequently. As well as within the *MAJ* itself, the journal's work has been cited repeatedly by many leading publications in the broad management area, including *The Journal of Business Ethics*, *Corporate Ownership and Control* and *The International Journal of Auditing*. This evidence provides particularly strong testimony to both the quality and reach of the *MAJ* and the regard in which it is held by leading authorities.

(Insert Table VI about here)

The next table, Table VII, details the sources that have been cited by *MAJ* authors most often. The list includes world renowned accounting and auditing journals including *The Accounting Review* (AJG Rating: 4*), *The Journal of Accounting Research* (AJG Rating: 4*), *The Journal of Accounting and Economics* (AJG Rating 4*) and *Auditing: A Journal of Practice & Theory* (AJG Rating: 3). The journal rankings indicate that they are globally

recognised as sources for the highest quality of research. Whilst many of these journals do not appear in the previous table, it is evident that the *MAJ* has acted as a key broker in the knowledge arena in the field, taking inspiration from other leading outlets and in turn inspiring management researchers more generally.

(Insert Table VII about here)

5 Bibliometric Analysis

5.1 Keyword Analysis

Keyword analysis was conducted in order to identify the most prominent recurrent themes in the *MAJ*'s output (RQ3), with mapping conducted on the basis of underlying density and centrality. A simple centers algorithm (Cobo *et al.*, 2011; Coulter *et al.*, 1998) was used to construct the keyword clusters and conduct quadrant placement. Figure 2 presents the thematic structure of the journal that emerged from the process.

(Insert Figure 2 about here)

5.1.1 Isolated Themes

The themes which appear in the upper left quadrant of the thematic map depicted in Figure 2 are those of an 'isolated' and 'highly developed' nature (Cobo *et al.*, 2011). Such themes have strong internal and weak external ties, indicating that while they are highly developed, they have little impact on the development of the themes in close proximity. Based on the unigrams which occur in clusters located around this quadrant, it was evident that these themes primarily relate to computer assisted tools and techniques, adoption of accounting standards, managerial auditing, customer profitability, satisfaction, defection (with a focus on the banking industry), cyber security and balanced scorecards. These themes are peripheral to the main themes pursued by the *MAJ*; whilst the journal has tackled them, they have had little impact on broader thematic development.

5.1.2 Motor Themes

The themes present in the upper right quadrant are called motor themes. These themes have strong internal and external ties, making them central to the development of the journal. Motor themes are well developed internally, with a significant bearing on growth in other themes (Coulter *et al.*, 1998). In this quadrant, themes relating to accounting practices and accounting education are dominant, reflecting outputs in areas such as under-reporting in public accounting (Shapeero *et al.*, 2003), ethical issues in accounting (Chan and Leung, 2006; Jackling *et al.*, 2007), development of accounting regulations (Hassan, 2008), management of accounting practices (Pavlatos and Paggios, 2009; Sulaiman *et al.*, 2004) and gender issues in accounting research (Khelif and Samaha, 2016).

5.1.3 Basic Themes

The themes present in the lower right quadrant are termed ‘basic’ or ‘traversal’ themes; although these exhibit weak internal development, they can have strong external ties (Cobo *et al.*, 2011) and may therefore be important in the progress of a journal over time. The basic themes that the *MAJ* has explored since its foundation in 1986 include: internal audit (e.g. Goodwin-Stewart and Kent, 2006; Mihret and Yismaw, 2007; Soh and Martinov-Bennie, 2011); the role of internal auditors (Sarens and De Beelde, 2006); internal control practices (Fadzil *et al.*, 2005; Khelif and Samaha, 2016; Rae and Subramaniam, 2008; Yang and Guan, 2004); risk reporting (Amran *et al.*, 2009; Lin *et al.*, 2003); and corporate governance (Haat *et al.*, 2008; Huafang and Jianguo, 2007). Despite not being the subject of as much development as those in the motor theme quadrant, basic themes play an important role in indicating the underlying focus of a journal and, in the present case, they point to the *MAJ*’s important role as an outlet for leading research in a wide range of fundamental audit-related issues.

5.1.4 Emerging or Declining Themes

The themes present in the lower left quadrant in Figure 2 represent either emerging or declining themes. These themes have in common a prevalence of weak internal and external ties, implying that they attract relatively low levels of attention from authors. As a result, they have little demonstrable impact on a journal's development by virtue of being either declining - and no longer relevant to the journal - or emerging, and only recently being explored by authors to any meaningful extent (Cobo *et al.*, 2011). In the case of the *MAJ*, the themes in this context which can be classified as 'emerging' include earnings quality management and audit quality (see, e.g., Kung *et al.*, 2019; Muttakin *et al.*, 2017; Orazalin and Akhmetzhanov, 2019; Qamhan *et al.*, 2018; Rahman and Mohamed Ali, 2006), which have found sustained recent interest in the *MAJ*. Topics such as knowledge spillover (e.g. Krishnan and Yu, 2011) and knowledge management (e.g. Jarrar, 2002) have received some attention, but remain underdeveloped and are therefore 'declining' on the basis of the terminology typically employed in this type of analysis.

5.1.5 Thematic Evolution

Figure 3 depicts the thematic evolution of the *MAJ* over the past 35 years based on analysis of authors' suggested keywords (RQ4). Inspection of the figures reveals that topics such as external audit, internal audit, internal control, accountability, issues relating to the auditing profession and fraud received the most attention during the first decade of the journal (1986-1995). As reflected in the Scopus database, author keywords were not available for the first decade of the *MAJ*'s life, so keywords from titles and abstracts were used instead for this period. The themes of internal audit and internal control then blend together into a single cognate theme of internal audit whilst accountability evolves into a broader corporate governance theme over the journal's second decade (1996-2005). However, several additional themes, including accounting, disclosures, management, ISO 9000 and the internet also emerged for the first time in the latter period. Over the third decade (2006-2015) and beyond,

the major themes in the journal's outputs have coalesced around ethics, internal audit, audit committees, performance management, corporate governance and earnings management.

The identification of thematic clusters and their evolution, depicted in Figure 3, is based on the co-occurrence of words. For example, clusters representing internal audit, external audit, and internal control existed as a separate cluster in the first decade whereas in the second ten-year period these three words were increasingly used together as keywords and therefore formed a single cluster. This new cluster is represented by internal audit (as the latter is the most commonly-used term), but then splits into two separate clusters: "internal audit" and "China." This trend indicates that in the journal's third decade much of the research undertaken regarding internal audit was cited in China. Similarly, "accounting", though representative of a broad topical area, has been used alongside terms relating to both internal audit and ethics, leading to the formation of internal audit and ethics clusters in the second and third periods respectively. This pattern demonstrates that research in accounting, at least in the *MAJ*, has primarily focussed on topics related to auditing and ethics, an outcome that makes sense given the emphasis on major contemporary debates in the journal itself. Keyword clusters, such as those concerning issues around accountability, the auditing profession and disclosures, have contributed to the development of corporate governance clusters, consistent with a scenario whereby accountability improvements motivate corporate governance developments, with audits and disclosures important tools in the process.

(Insert Figure 3 about here)

5.1.6 Keyword Co-occurrence analysis using VOSviewer

Table VIII details the keywords most used often by *MAJ* authors. The keyword 'auditing' leads in this regard, followed by 'auditors' and 'corporate governance.' The period-wise occurrence of these terms in titles and abstracts also points to the consistent focus on these issues within the *MAJ*. The emphasis of issues relating to corporate governance is further suggested by the

repeated occurrence of the terms ‘internal audit’ and ‘internal auditing,’ as well as the common usage of ‘internal control’ and ‘ethics and fraud’. The regular employment of the word ‘accounting’ by authors along with its increasing usage in titles and abstracts points to the importance of the topic to *MAJ* authors. The strategic map of the journal also indicates the importance of internal auditing and accounting as underpinning themes in the *MAJ*, although ‘financial reporting’ and ‘disclosures’ are now being used regularly in titles and abstracts. Two nations which have grown in significance in this context are the US and Australia, as indicated by their regular presence as keywords. This pattern is not unexpected, given that these are the nations providing the most contributions to the journal, indeed the growth in occurrence of the word ‘Australia’ in the keyword and abstract section coincides with Australia’s rise as a dominant contributor. Another observation based on the data is that while authors tend to use ‘United States of America’ as a keyword, they are less disposed to including it in titles or abstracts. Malaysia and China have also gained prominence as research settings, with usage increasing in titles and abstracts over time. As shown in Figure 2, ‘earnings’ is an emerging theme in the *MAJ*, with appearances growing in number recently in line with the increase in use of words related to financial reporting and disclosures noted above. Other prominent issues include audit committees (occurrence: 39), accounting standards (38), and risk management (30). A particularly noteworthy case revolves around the keyword ‘audit,’ which is used much less often as an author keyword. While this is to be expected, given the generic nature of the term itself, it has been used regularly in titles and abstracts, suggesting that the extent to which its generality mitigates its use varies across sites. Figure 4 illustrates the network of keywords used by *MAJ* authors; words such as auditing, corporate governance and internal audit all appear prominently.

[Insert Table VIII and Figure 4 about here]

5.2 Co-authorship Network Analysis

Figures 5a through 5d illustrate the co-authorship networks formed in *MAJ* since its inception (RQ5). During the first period (1986 to 1995; Figure 5a), the co-authorship network was limited, reflecting the fact that in the journal's early years, major contributions were dominated by American and European authors, with the network contained within these regions. During the second period (1996-2005; Figure 5b), with an increase in the number of countries represented in the authorship data, the extent of relational ties increased and the co-authorship network expanded to span four continents. This growth continued in the third period (2006-2015) to cover nations across all parts of the world although, as in the previous period, inspection of the relevant figure (5c) indicates that the US, the UK and Australia served as the centrepieces of this network. The most recent period (2016-2019; Figure 5d) saw Asian countries forming networks on their own for the first time, indicating the increased importance of perspectives in leading journals in the accounting and broader business fields.

(Insert Figure 5a, 5b, 5c and 5d about here)

The thickness of links in Figures 5a through 5d represents the number of co-authored articles and Table IX details the underpinning country pair data. As noted above, during the *MAJ*'s first decade of publication international links were not extensive and the data in the table reflects this situation. The most regular country pairings during this period were Australia and the US, plus the UK and the US, with two co-authored articles each. For the second decade, the same country pairs dominated, although now with six co-authored articles each. The picture changes during the third decade when, as the journal developed its international reach and scope, the most prolific country pair was Australia and Malaysia, with seven co-authored papers appearing. By the final period, 2016-2019, the expansion of the *MAJ* into the developing world is reflected in the emergence of two Asian nations, Malaysia and Yemen, as having the most (three) co-authored articles.

(Insert Table IX about here)

Table Xa provides details about the most prominent nations in the *MAJ*'s co-authorship data, across different types of network centralities (RQ6). The degree of centrality is determined by the total number of relational ties each node shares with others the network; in a co-authorship network this is a measure of the extent of collaboration (Burton *et al.*, 2020). The table reveals that the UK and the US are the most strongly connected countries in the network, consistent with their status as most prolific contributors to the journal. However, whilst the US has contributed more articles to the journal, its authors have been part of fewer international collaborations than those from the UK.

Weighted Degree of Centrality (WDC) is the sum of all relational ties a node has in the network multiplied by the strength of each tie, where the latter represents the frequency of collaboration. Here too the UK outperforms the US, with a WDC score of 82 versus 70 for the US; not only has the UK formed the most relational ties, the frequency of collaboration is also higher. Betweenness Centrality measures a node's ability to connect otherwise unconnected nodes. In a co-authorship network these nodes act as a gateway between groups of authors (Cisneros *et al.*, 2018). Again, the UK emerges as the leading nation, although Canada and Belgium also score highly, with the US not featuring in the top 10. Finally, Eigen Vector Centrality is a measure of the overall importance of a node in a network, based on the assumption that important nodes in a network will be connected to other highly connected ones (Cisneros *et al.*, 2018). On this basis the US, consistent with its status as the dominant nation in terms of output numbers, emerges as the most important node, followed by the UK and the Netherlands. Overall, the network centrality analysis presented above suggests that the UK, despite generating many fewer contributions to the *MAJ* journal than has the US, plays the most important role in the collaborative network.

(Insert Table Xa about here)

Figure 6 illustrates the co-authorship network for contributors to the *MAJ* (RQ5). The most strongly connected authors in the network are Alan Reinstein, Thomas A. Gavin, Philomena Leung and Barry J. Cooper. Gerald Vinten, despite being one of the most prolific contributors, does not appear prominently in the network, reflecting the fact that most of his outputs are single-authored.

(Insert Figure 6 about here)

Table Xb presents the list of the most important authors in the co-authorship network across different measures of centrality (RQ6). The most prominent authors in the network on the basis of Degree of Centrality are Barry J. Copper, Thomas A. Gavin and Alan Reinstein, while according to Weighted Degree of Centrality, Barry J. Cooper and Philomena Leung are the most important. The Betweenness Centrality results shown in the table suggest that the authors who have exhibited the strongest ability to connect a group of contributors and act as gateways for knowledge are Barry J. Cooper, Thomas A Gavin and Alan Reinstein. A different picture is provided by Eigenvector Centrality, with Zabihollah Rezaee, Alan Reinstein and Philip H. Siegel emerging as the most important authors. Other than Alan Reinstein, these individuals do not show up prominently across the network, pointing to these measures' ability to capture different aspects of network centrality. The pattern observed here is consistent with a situation where the importance of an author in a particular collaborative network is independent of his/her relational ties with other authors.

(Insert Table Xb about here)

Table XI depicts trends for single-authored and multi-authored articles in the *MAJ*. During the journal's first decade (1986-1995), 58% of published studies were contributed by a sole author, but the proportion has declined steadily since then, dropping to just 14% between

2016 and 2019. When considering this data alongside the evidence of growth and development presented elsewhere in the present study, it is clear that the productivity and impact of the *MAJ* has increased consistently since its initiation, pointing to (and enabling) a strong culture of collective endeavour among scholars that in turn has led to the dissemination of high quality research on a regular basis.

(Insert Table XI about here)

5.3 Co-Citation Analysis of Journals using VOSviewer

Figure 7 depicts the co-citation network for the *MAJ*, based on the sources cited most often by its authors. Inspection of the diagram indicates that *MAJ* authors have cited a wide variety of journals over the years and so VOSviewer is used to divide the outlets into three categories represented by their colors. The most prominent ones belong to accounting journals, represented in blue, with proximity to one another indicating similarity in content. These include: *The Accounting Review*; *Auditing: A Journal of Theory and Practice*; *Contemporary Accounting Research*; *Accounting Horizons*; and *The Journal of Accounting Literature*. The second category (represented by the color red) indicates that the journal concerned operates within the field(s) of strategic and behavioural accounting. The outlets comprising this category, alongside the *MAJ*, include: *The Journal of Business Ethics*; *The Journal of Accountancy*; *Accounting, Organizations and Society*; *The Harvard Business Review*; *The Academy of Management Journal*; and *The Strategic Management Journal*. The third cluster (green) relates to the larger area of accounting and finance arena with journals such as: *The Journal of Accounting and Economics*; *Accounting and Business Research*; *The European Accounting Review*; *The International Journal of Accounting*; *The Journal of Financial Economics*; *The Journal of Corporate Finance*; and *Corporate Governance: An International Review* all included. The emergence of three identifiable clusters implies that, while *MAJ* authors have

focused primarily on core accounting, there has been substantial interest in the behavioural and managerial aspects of accounting along with overlapping work in the area of corporate finance.

[Insert Figure 7 about here]

6 Conclusion

This study has provided a retrospective review of the *MAJ*'s progress since its inception in 1986, via the employment of a wide range of bibliometric tools and performance analysis techniques. The results of this work point to growth in scale that has been somewhat varied, but with advancement in quality and scope that is both consistent and robust. Whilst publication numbers rose from 12 in 1986 to peak at over 70 in 2003 before stabilising in the high 30s to mid-40s, citations of the journal's work have grown impressively from zero in 1986 to around 1800 in recent years. The most prolific contributor to the journal is Roger K. Doost, whilst RMIT University and the US represent the most prolific institution and country respectively. Table XII provides a summary of these findings as well as the evidence regarding dominant themes.

(Insert Table XII about here)

The information relating to themes shown in the table reveals that issues such as public accounting, ethics in accounting and accounting regulations have been essential to the development of journal, with internal auditing, internal control practices and corporate governance also important staples in the output. The scientific mapping undertaken in this regard also suggests that the themes of earnings, quality management, and audit quality have become additional important *MAJ* topics, whilst themes such as balanced scorecards, managerial audits, customer behaviour in banking and adoption of IT - although on the periphery - have been explored by several authors as well. Importantly, co-authorship analysis points to the journal's role in fostering and empowering collaborative effort throughout its life

with the early prominence of the US, the UK and Australia in this context declining overtime as international reach has grown. Network centrality reveals that the UK, despite contributing fewer articles than the US, has played an important role in the building of the co-authorship network.

Over the 35 years of its existence, the *MAJ* has experienced many changes, not least because the practice and context of auditing and assurance has evolved rapidly over this time. Whilst *MAJ* papers have reflected much of this development, our investigation of the journal's, success suggests to us that this could be further consolidated by prioritising work in a number of specific areas. First, *MAJ* authors have taken an interest in earnings management and this could be expanded upon in the future as the strongly embedded nature of much of this behaviour - and the need for a robust auditing response - becomes clearer. Second, in recent years the *MAJ* has provided an effective outlet for research conducted in several of the world's developing nations. Whilst this is encouraging, placing the journal ahead of many of its peers in this regard, the dominant role of the US in particular remains and on-going efforts will be needed if studies from right across the globe are to develop critical mass. Finally, the implications of new innovations in finance (e.g. blockchains) on auditing practices is becoming more apparent and this requires careful examination. These new technologies, while presenting new opportunities for auditors, also pose a number of challenges and the *MAJ*, given its reach and respected status, can play an important role in this context.

In summary, the present study has made three contributions to understanding regarding the *MAJ*'s on-going success and future potential. *First*, by undertaking detailed performance analysis we have demonstrated growth and advancement in the journal's productivity and impact as well as its role in cultivating a collaborative network of global scholars. *Second*, the investigation has illustrated the evolutionary nature of the journal's thematic focus, pointing to its ability to reflect the rapidly changing world of accounting and audit whilst identifying

emergent themes such that potential authors can prioritise work in areas deemed important by one of the world's leading publications in the field. Finally, and relatedly, we have offered some suggestions regarding specific areas, building on existing expertise while reflecting structural changes in the (increasingly globalised) broader financial environment.

The *MAJ* has retained its status as one the leading journals in the field of auditing and assurance for many years, reflecting its emphasis on high-quality, impactful research in the field that has in turn generated strong citation metrics. Whilst we have tried to provide a rigorous account of the journal's story to date, the research is not without limitations as the data is sourced from an external database and we fully acknowledge that any flaws in the latter will be carried over to the study.

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Table I. Special Issues Published in the *MAJ* between 1986 and 2019

S.no	Year	Vol./Issue	Special Issue Theme	Guest Editor(s)
1.	2019	Vol. 34 Issue 8	Textual-Analysis for Research in Professional Judgment and Decision Making, Audit and Assurance, Risk, Control, Governance, and Regulation	Louise Hayes, University of Guelph, Canada
2.	2019	Vol. 34 Issue 3	Organizational Risk, Fraud, Forensics, Anti Money Laundering Laws and Controls, and Corporate Corruption	Jagdish Pathak, University of Windsor, Canada
3.	2019	Vol. 34 Issue 1	Meta-Analysis for Research in Professional Judgment, Assurance, Risk Assessment, and Governance	Bradley Pomeroy, University of Waterloo, Canada
4.	2018	Vol. 33 Issue 4	Cybersecurity Assurance	Graham Gal, University of Massachusetts, Amherst, USA
5.	2017	Vol. 32 Issue 4/5	Accounting, Auditing & Governance in the SAARC group of nations: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka	Steven Dellaportas and Mahesh Joshi, RMIT University, Melbourne, Australia
6.	2017	Vol. 32 Issue 2	Use of Performance Measures, Balanced Scorecards and Dashboards	Priscilla A. Burnaby, Bentley University, Waltham, Massachusetts, USA Susan Hass, Simmons College, Massachusetts, USA
7.	2016	Vol. 31 Issue 2	Accounting for a Sustainable Future	Gillian Vesty and Steven Dellaportas, RMIT University, Melbourne, Australia
8.	2016	Vol. 31 Issue 1	Continuous Auditing/Continuous Monitoring (CA/CM)	Graham Gal, University of Massachusetts, USA
9.	2014	Vol. 29, Issue 9	Audit quality	Alan Kilgore, Macquarie University, Australia
10.	2015	Vol. 30, Issue 1	Internal assurance: a concept in evolution	Gerrit Sarens, Université Catholique de Louvain, Louvain-la-Neuve, Belgiu
11.	2015	Vol.30 Issue 2	Perspectives of Risk Management – attenuation, leadership, incentives and complementation	Cuganesan and Jim Rooney, The University of Sydney, New South Wales Australia
12.	2014	Vol. 29, Issue 5	Audit Quality in China	Ahsan Habib, Massey University, New Zealand
13.	2013	Vol. 28, Issue 8	Audit Fees	NA
14.	2013	Vol. 28, Issue 1	Assurance, Management Performance and Governance	Barry J. Cooper, Deakin University, Australia Philomena Leung, Macquarie University, Australia Nonna Martinov-Bennie, Macquarie University, Australia

S.no	Year	Vol./Issue	Special Issue Theme	Guest Editor(s)
15.	2012	Vol. 27, Issue 4	Audit Committee Characteristics	Steven Dellaportas, RMIT University, Melbourne, Australia Philomena Leung, Macquarie University, Sydney, Australia and Barry J. Cooper, Deakin University, Geelong, Australia
16.	2012	Vol. 27, Issue 2	Corporate Narrative Reporting	Khaled Hussainey, University of Portsmouth, UK
17.	2011	Vol. 26, Issue 7	Risk management, governance and assurance	Nava Subramaniam, Deakin University, Australia Peter Carey, Monash University, Australia
18.	2009	Vol. 24, Issue 9	Internal Audit and Standards – a global review from the Common Body of Knowledge project	NA
19.	2009	Vol. 24, Issue 1	The future of the external auditing function	Ian Fraser, University of Stirling, Stirling, UK Chris Pong, Nottingham University, UK
20.	2006	Vol. 22, Issue 7	Case study research in accounting, auditing, and business	Steven Dellaportas, RMIT University, Australia Philomena Leung, Deakin University, Australia Barry J Cooper, RMIT University, Australia
21.	2007	Vol. 22, Issue 2	Competitiveness of the Audit Services Market	Ian Marrian, University of Edinburgh Chris Pong, University of Edinburgh
22.	2006	Vol. 21, Issue 8	The Common Body of Knowledge Study on Internal Auditing	Philomena Leung, Deakin University, Australia Barry J Cooper, RMIT University, Australia
23.	2006	Vol. 21, Issue 7	The Influence of “Culture” on Accounting and Auditing in Malaysia	Roszaini Haniffa, Bradford University, UK
24.	2005	Vol. 20, Issue 6	Complex Integrated Accounting Systems & Auditing	Jagdish Pathak, University of Windsor, Canada
25.	2005	Vol. 20, Issue 5	Auditing human resourcing	NA
26.	2005	Vol. 20, Issue 3	Financial regulation	NA
27.	2005	Vol. 20, Issue 2	Costing towards effectiveness	NA
28.	2005	Vol. 20, Issue 1	Auditing standards and perceptions	NA

Note: NA: Not available

Table II. Annual Citation and Publication data for the *MAJ* between 1986 and 2019

Year	TP	NCP	TC	C/P	C/CP	≥ 10	≥ 5	≥ 1
1986	12	0	0	0.00	0.00	0	0	0
1987	21	3	3	0.14	1.00	0	0	3
1988	20	1	1	0.05	1.00	0	0	1
1989	23	3	3	0.13	1.00	0	0	3
1990	23	7	11	0.48	1.57	0	0	7
1991	26	4	4	0.15	1.00	0	0	4
1992	33	14	16	0.48	1.14	0	0	14
1993	34	17	19	0.56	1.12	0	0	17
1994	37	27	32	0.86	1.19	0	0	27
1995	44	24	25	0.57	1.04	0	0	24
1996	52	13	17	0.33	1.31	0	0	13
1997	55	28	32	0.58	1.14	0	0	28
1998	33	26	27	0.82	1.04	0	0	26
1999	42	26	27	0.64	1.04	0	0	26
2000	41	43	50	1.22	1.16	0	0	43
2001	52	46	56	1.08	1.22	0	0	46
2002	68	65	84	1.24	1.29	0	0	65
2003	71	83	107	1.51	1.29	0	0	83
2004	73	132	176	2.41	1.33	0	1	132
2005	69	155	231	3.35	1.49	0	2	155
2006	62	205	332	5.35	1.62	0	7	205
2007	53	225	382	7.21	1.70	1	8	225
2008	46	306	577	12.54	1.89	2	16	306
2009	45	327	654	14.53	2.00	3	22	327
2010	44	368	747	16.98	2.03	3	33	368
2011	49	410	965	19.69	2.35	8	47	410
2012	39	422	1007	25.82	2.39	7	44	422
2013	35	477	1178	33.66	2.47	10	63	477
2014	36	490	1190	33.06	2.43	10	54	490
2015	37	518	1340	36.22	2.59	15	72	518
2016	38	50	1512	39.79	30.24	18	79	50
2017	40	596	1578	39.45	2.65	23	83	596
2018	37	606	1846	49.89	3.05	30	113	606
2019	45	628	1788	39.73	2.85	25	104	628

Note: TP= total publications, NCP= number of cited publications, TC= total citations, C/P= cites per publication, C/CP = Cites per cites publication, and ≥ 10 , ≥ 5 , and ≥ 1 = number of articles with more than 10, 5 and 1 citation(s) respectively

Table IIIa. Most Prolific Authors in the *MAJ* between 1986 and 2019.

R	Author	Institution	TP	TC	h	C/P	No. of publications cited				
							≥ 100	≥ 50	≥ 20	≥ 10	≥ 5
1	Doost, R.K.	Clemson University	28	67	4	2.39	0	0	0	2	3
2	Vinten, G.	Southampton Business School	26	138	8	5.31	0	0	1	8	8
3	Smith, M.	University of South Australia	21	211	8	10.05	0	1	3	7	15
4	Cooper, B.J.	Deakin University	19	290	10	15.26	1	1	4	10	11
5	Leung, P.	Macquarie University	16	273	10	17.06	0	1	5	10	11
6	Rezaee, Z.	University of Memphis	14	190	8	13.57	0	0	4	8	8
7	Reinstein, A.	Wayne State University	13	61	4	4.69	0	0	0	3	4
8	Gavin, T.A.	University of Tennessee at Chattanooga	12	21	3	1.75	0	0	0	0	1
9	Summers, G.E.	Louisiana State University	10	12	2	1.20	0	0	0	0	1
10	Colbert, J.L.	Gordon Ford College of Business	9	34	4	3.78	0	0	0	0	3
11	Sarens, G.	Université Catholique de Louvain	9	218	7	24.22	0	1	4	6	6
12	Dittenhofer, M.	Florida International University	9	88	5	9.78	0	0	1	3	5
13	Vanasco, R.R.	National Louis University	9	79	5	8.78	0	0	2	2	5
14	Burnaby, P.	Bentley University	8	159	5	19.88	0	1	3	5	7
15	Gunasekaran, A.	California State University	8	108	6	13.50	0	0	1	5	7
16	Hass, S.	Simmons College	8	101	5	12.63	0	0	1	3	6
17	Ziegenfuss, D.E.	Old Dominion University	8	100	5	12.50	0	1	1	3	5
18	Kleiner, B.H.	California State University	8	32	3	4.00	0	0	0	1	3
19	Hussainey, K.	University of Portsmouth	7	222	6	31.71	0	3	3	5	7
20	Nagy, A.L.	John Carroll University	7	174	4	24.86	1	1	2	2	4
21	Watson, M.	University of Huddersfield	7	91	6	13.00	0	0	1	3	6
22	Subramaniam, N	RMIT University	6	218	5	36.33	0	1	5	5	5
23	Martinov-Bennie, N	Macquarie University	6	127	5	21.17	0	1	2	3	5
24	Lee, H.Y	Yonsei University	6	48	3	8.00	0	0	1	1	2
25	Greenawalt, M.B	The Citadel - The Military College of South Carolina	6	29	3	4.83	0	0	0	0	3

Note: TP= total publications, TC= total citations, h = h -index, C/P= cites per publication, and ≥ 100 , ≥ 50 , ≥ 20 , ≥ 10 , and ≥ 5 = number of articles with more than 100, 50, 20, 10 and 5 citations respectively.

Table IIIb. Most Prolific Institutions Contributing to the *MAJ* between 1986 and 2019

R	Institutions	TP	TC	<i>h</i>	C/P	No. of publications cited				
						≥100	≥50	≥20	≥10	≥5
1	RMIT University	31	469	14	15.13	1	1	8	16	21
2	Clemson University	31	104	5	3.35	0	0	1	4	5
3	Deakin University	24	497	13	20.71	0	1	9	12	15
4	Florida International University	21	137	7	6.52	0	0	1	5	10
5	City University of London	20	113	5	5.65	0	0	2	4	5
6	Griffith University	20	393	10	19.65	0	2	7	10	14
7	Queensland University of Technology	16	175	8	10.94	0	0	4	7	9
8	Bentley College	16	326	9	20.38	0	1	5	9	14
9	Macquarie University	15	236	8	15.73	0	1	3	7	14
10	Hong Kong Polytechnic University	15	168	5	11.20	0	1	3	4	6
11	California State University	15	132	6	8.80	0	0	2	5	9
12	Wayne State University	15	70	5	4.67	0	0	0	3	5
13	Universidade de Macau	14	137	8	9.79	0	0	2	7	10
14	University of Stirling	13	294	7	22.62	0	2	5	7	10
15	Curtin University	13	210	8	16.15	0	0	5	7	9
16	Middle Tennessee State University	13	185	8	14.23	0	0	3	8	9
17	Utah State University	13	17	3	1.31	0	0	0	0	1
18	Louisiana State University	13	15	2	1.15	0	0	0	0	1
19	University of South Australia	12	148	7	12.33	0	0	3	5	10
20	University of New South Wales	12	125	5	10.42	0	1	2	2	7
21	University of East Anglia	12	70	6	5.83	0	0	0	2	6
22	Universiti Teknologi MARA	10	418	8	41.80	1	2	4	6	9
23	Old Dominion University	10	95	5	9.50	0	0	1	3	6
24	Hong Kong Baptist University	10	93	6	9.30	0	0	2	5	6
25	John Carroll University	10	90	5	9.00	0	0	2	3	5

Note: TP= total publications, TC= total citations, *h*= *h*-index, C/P= cites per publication, and ≥100, ≥50, ≥20, ≥10, and ≥5 = number of articles with more than 100, 50, 20, 10 and 5 citations respectively.

Table IIIc. Most Prolific Countries Contributing to the *MAJ* between 1986 and 2019.

R	Countries	TP	TC	<i>h</i>	C/P	No. of publications cited				
						≥100	≥50	≥20	≥10	≥5
1	United States	537	4567	31	8.50	1	13	61	144	245
2	United Kingdom	288	3435	29	11.93	2	13	51	102	151
3	Australia	186	2610	27	14.03	2	8	47	78	115
4	Malaysia	58	1513	20	26.09	2	8	21	36	46
5	Hong Kong	45	556	14	12.36	0	3	9	17	24
6	China	41	573	12	13.98	1	4	6	13	30
7	Canada	40	432	14	10.80	0	1	7	19	23
8	New Zealand	35	495	13	14.14	0	2	9	18	22
9	Greece	20	365	10	18.25	1	1	5	11	15
10	Italy	17	190	7	11.18	0	0	3	6	10
11	India	16	127	7	7.94	0	0	2	3	8
12	Belgium	15	288	8	19.20	0	1	5	8	10
13	Saudi Arabia	15	273	7	18.20	1	1	3	7	9
14	Singapore	15	265	8	17.67	0	1	6	8	9
15	Finland	15	222	6	14.80	1	1	3	5	9
16	Taiwan	15	211	8	14.07	0	2	3	5	10
17	Tunisia	15	162	7	10.80	0	1	2	6	7
18	Sweden	15	158	7	10.53	0	0	3	6	8
19	Egypt	14	143	6	10.21	0	0	2	6	10
20	Germany	14	114	7	8.14	0	0	2	4	7
21	United Arab Emirates	13	280	7	21.54	0	2	5	7	9
22	Turkey	13	132	6	10.15	0	0	2	6	8
23	Spain	12	184	6	15.33	0	1	3	4	6
24	Netherlands	11	143	5	13.00	0	0	2	5	5
25	Macao	11	97	6	8.82	0	0	1	5	8

Note: TP= total publications, TC= total citations, *h*= *h*-index, C/P= cites per publication, and ≥100, ≥50, ≥20, ≥10, and ≥5 = number of articles with more than 100, 50, 20, 10 and 5 citations respectively

Table IV. Inter-Temporal Breakdown of Authors, Institutions and Countries Contributing to the *MAJ*

1986-1995								
Author	TP	TC	Institution	TP	TC	Country	TP	TC
Vinten, G.	15	53	City University of London	15	28	United States	139	421
Gavin, T.A.	10	18	Louisiana State University	12	15	United Kingdom	79	258
Sumners, G.E.	10	12	The University of Tennessee System	9	13	Australia	19	83
Greenawalt, M.B	6	29	Florida International University	8	18	New Zealand	10	98
Rezaee, Z.	6	29	University of East Anglia	7	26	Hong Kong	6	9
Colbert, J.L.	6	17	Middle Tennessee State University	7	46	Singapore	5	6
Lander, G.H.	5	23	University of Miami	6	15	Canada	3	7
Cooper, B.J.	5	18	Utah State University	6	5	India	3	6
Kleiner, B.H.	5	7	Massey University Manawatu	5	96	Germany	3	2
Vanasco, R.R.	4	39	Hong Kong Polytechnic University	5	34	Taiwan	1	4
1996-2005								
Author	TP	TC	Institution	TP	TC	Country	TP	TC
Doost, R.K.	28	67	Clemson University	29	92	United States	211	2595
Smith, M.	14	123	Florida International University	12	115	United Kingdom	144	2210
Vinten, G.	10	65	University of South Australia	12	148	Australia	54	685
Reinstein, A.	9	37	Queensland University of Technology	11	120	Hong Kong	31	371
Gunasekaran, A.	7	100	Hong Kong Baptist University	10	93	China	28	293
Rezaee, Z.	7	160	Wayne State University	9	37	Canada	16	267
Watson, M.	7	90	Hong Kong Polytechnic University	8	63	Malaysia	16	320
Lee, S.F.	6	171	RMIT University	8	99	Singapore	10	258
Vanasco, R.R.	5	89	London Metropolitan University	7	144	India	8	97
Brierley, J.A.	5	74	Bath Spa University	7	90	Greece	7	291
2006-2015								
Author	TP	TC	Institution	TP	TC	Country	TP	TC
Leung, P.	12	221	Deakin University	20	484	United States	145	1492
Cooper, B.J.	11	222	Griffith University	14	357	Australia	88	1722
Sarens, G.	8	215	RMIT University	12	312	United Kingdom	51	928
Hass, S.	7	96	Bentley College	11	223	Malaysia	34	1174
Hussainey, K.	6	205	Macquarie University	11	217	New Zealand	16	232

Martinov-Bennie, N.	6	123	Universidade de Macau	10	110	Canada	12	144
Subramaniam, N.	6	211	Curtin University	9	142	Belgium	11	277
Stewart, J.	5	128	Universiti Teknologi MARA	8	391	Italy	11	162
Burnaby, P.	5	80	University of Stirling	8	234	Finland	10	177
Smith, M.	5	55	University of New South Wales UNSW	7	108	United Arab Emirates	10	263

2016-2019

Author	TP	TC	Institution	TP	TC	Country	TP	TC
Azim, M.I.	3	14	RMIT University	7	41	United States	42	60
Khlif, H.	2	25	University of Sfax	5	7	Australia	25	122
Hashim, H.A	2	14	Swinburne University of Technology	4	37	United Kingdom	14	39
Yapa, P.W.S	2	11	Kent State University	4	6	Tunisia	10	50
Roberts, C.	2	10	Qatar University	3	14	Canada	9	14
Barut, M	2	9	Deakin University	3	11	Egypt	8	41
Waweru, N.M	2	8	University of Texas at El Paso	3	7	Malaysia	8	38
Lee, H.Y	2	6	Coventry University	3	6	Italy	6	20
Nehme, R	2	6	University of Massachusetts Lowell	3	3	India	4	15
Park, H.Y	2	6	Université de Monastir	2	25	Belgium	4	6

Note: TP= total publications and TC=total citations

Table V. Most Cited *MAJ* Articles

Title	Authors	Year	TC	C/Y
Board, audit committee, culture and earnings management: Malaysian evidence	Rahman R.A., Mohamed Ali F.H.	2006	221	17.00
Ownership structure, board composition and corporate voluntary disclosure: Evidence from listed companies in China	Huafang X., Jianguo Y.	2007	158	13.17
Six Sigma in the UK service organisations: Results from a pilot survey	Antony J.	2004	158	10.53
A study of corporate social disclosures in Bangladesh	Rahman Belal A.	2001	152	8.44
The association between firm-specific characteristics and disclosure: The case of Saudi Arabia	Alsaeed K.	2006	129	9.92
Client size, auditor specialization and fraudulent financial reporting	Carcello J.V., Nagy A.L.	2004	117	7.80
Life cycle costing: A review of published case studies	Korpi E., Ala-Risku T.	2008	110	10.00
Governance structures, ethnicity, and audit fees of Malaysian listed firms	Yatim P., Kent P., Clarkson P.	2006	108	8.31
Detecting false financial statements using published data: some evidence from Greece	Spathis C.T.	2002	106	6.24
An investigation of TBL report assurance statements: UK and European evidence	Deegan C., Cooper B.J., Shelly M.	2006	101	7.77
The impact of government and foreign affiliate influence on corporate social reporting: The case of Malaysia	Amran A., Devi S.S.	2008	98	8.91
Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports	Amran A., Manaf Rosli Bin A., Che Haat Mohd Hassan B.	2009	95	9.50
Corporate governance, transparency and performance of Malaysian companies	Haat M.H.C., Rahman R.A., Mahenthiran S.	2008	91	8.27
Six Sigma in the software industry: Results from a pilot study	Antony J., Fergusson C.	2004	87	5.80
Corporate social performance reporting in Bangladesh	Imam S.	2000	86	4.53
The financial effects of ISO 9000 registration for Danish companies	Häversjö T.	2000	84	4.42
Computer-assisted audit tools and techniques: Analysis and perspectives	Braun R.L., Davis H.E.	2003	82	5.13
A fuzzy neural network for assessing the risk of fraudulent financial reporting	Lin J.W., Hwang M.I., Becker J.D.	2003	82	5.13
The effect of audit committee performance on earnings quality	Lin J.W., Li J.F., Yang J.S.	2006	80	6.15
Auditor fees and audit quality	Hoitash R., Markelevich A., Barragato C.A.	2007	79	6.58

Note: TC= total citations, C/Y= cites per year

Table VI. Authors, Countries and Journals Citing the *MAJ* most often between 1986 and 2019.

Author	CC	Country	CC	Institution	CC	Journal	CC
Devadasan, S.R.	44	United States	1409	Universiti Teknologi MARA	238	<i>Managerial Auditing Journal</i>	491
Hussainey, K.	39	United Kingdom	1246	Universiti Utara Malaysia	187	<i>Journal of Business Ethics</i>	170
Antony, J.	38	Malaysia	1133	Deakin University	108	<i>Corporate Ownership and Control</i>	159
Vinten, G.	30	Australia	1084	Curtin University	103	<i>International Journal of Auditing</i>	114
Sarens, G.	25	Spain	481	Universiti Sains Malaysia	99	<i>Journal of Cleaner Production</i>	99
Smith, M.	22	India	452	International Islamic University Malaysia	93	<i>International Journal of Quality and Reliability Management</i>	87
Boiral, O.	21	China	393	Macquarie University	93	<i>Auditing</i>	86
Habib, A.	21	Indonesia	360	Griffith University	88	<i>Social Responsibility Journal</i>	86
Ntim, C.G.	21	Canada	351	Universiti Putra Malaysia	87	<i>Total Quality Management and Business Excellence</i>	86
Velte, P.	20	Germany	299	Universiti Kebangsaan Malaysia	83	<i>Australian Accounting Review</i>	78
Love, P.E.D.	19	Italy	275	Multimedia University	81	<i>Journal of Applied Accounting Research</i>	78
Karapetrovic, S.	18	Greece	254	RMIT University	79	<i>Accounting Auditing and Accountability Journal</i>	76
Subramaniam, N.	18	New Zealand	254	Universiti Teknologi Malaysia	74	<i>Sustainability</i>	74
Amran, A.	17	Taiwan	226	University of Malaya	72	<i>International Journal of Accounting Auditing and Performance Evaluation</i>	71
Law, P.	17	South Africa	198	Auckland University of Technology	68	<i>Corporate Governance Bingley</i>	70
Salehi, M.	17	Iran	196	Queensland University of Technology	67	<i>Asian Review of Accounting</i>	69
Spathis, C.	17	Portugal	167	Monash University	67	<i>Advances in Accounting</i>	58
Stewart, J.	17	Sweden	163	University of New South Wales UNSW Australia	67	<i>TQM Journal</i>	58
Muruges, R.	16	Brazil	162	University of South Australia	66	<i>Accounting Forum</i>	51
Nawawi, A.	16	United Arab Emirates	157	Hong Kong Polytechnic University	63	<i>Academy of Accounting and Financial Studies Journal</i>	50

Note: CC= citation count

Table VII. Sources referred to most often by MAJ Authors between 1986 and 2019

Source	CC	AJG rating
<i>The Accounting Review</i>	1780	4*
<i>Managerial Auditing Journal</i>	1374	2
<i>Journal of Accounting Research</i>	1308	4*
<i>Journal of Accounting and Economics</i>	1018	4*
<i>Auditing: A Journal of Practice & Theory</i>	961	3
<i>Contemporary Accounting Research</i>	863	4
<i>Accounting Horizons</i>	713	3
<i>Accounting, Organizations and Society</i>	654	4*
<i>Journal of Business Ethics</i>	646	3
<i>Journal of Financial Economics</i>	555	4*
<i>International Journal of Auditing</i>	490	2
<i>Internal Auditor (magazine)</i>	333	NR
<i>Journal of Accountancy</i>	322	NR
<i>Accounting, Auditing and Accountability Journal</i>	319	3
<i>Journal of Accounting and Public Policy</i>	286	3
<i>Accounting and Business Research</i>	280	3
<i>Accounting Review</i>	262	4*
<i>Journal of Finance</i>	239	4*
<i>Corporate Governance: An International Review</i>	239	3
<i>The International Journal of Accounting</i>	235	3
<i>Harvard Business Review</i>	228	3
<i>Academy of Management Review</i>	223	4*
<i>Academy of Management Journal</i>	218	4*
<i>Journal of Accounting Literature</i>	216	3
<i>European Accounting Review</i>	213	3

Note: CC= citation count and AJG Rating =Academic Journal Guide Rating given by Chartered Association of Business Schools (CABS) where: 4*= journals of academic excellence; 4= journals publishing the most novel and finest research; 3= journals publishing unique and well-executed research; 2= journals publishing unique research of an acceptable standard; 1= recognized journals but publishing more modest standard research; NR= Not rated.

Table VIII. Top 20 keywords used by MAJ authors

Keyword	Based on the Author Keyword Section			Occurrence in Titles and Abstracts			
	TO	Links	TLS	1986- 1995	1996- 2005	2006- 2015	2016- 2019
Auditing	187	380	642	88	156	128	44
Auditors	123	275	441	50	152	211	66
Corporate Governance	110	246	437	3	22	71	27
Internal Audit	75	182	276	87	95	61	28
Financial Reporting	72	176	296	1	23	60	16
Internal Auditing	64	142	210	32	37	27	9
Accounting	55	125	201	22	149	140	41
Fraud	48	109	178	12	40	28	10
Ethics	44	115	173	15	15	9	2
Internal Control	44	101	164	7	31	43	12
Malaysia	43	112	161	0	12	33	6
Disclosure	40	96	160	1	16	68	25
Audit Committees	39	95	159	5	9	23	10
Accounting Standards	38	91	133	0	14	10	3
United States of America	34	106	155	0	0	1	0
Australia	31	96	127	5	33	35	9
Audit	31	93	114	207	309	335	115
China	30	81	110	1	27	17	4
Risk Management	30	70	105	1	4	22	9
Earnings	27	65	90	0	10	54	14

Note: This table presents the list of most used keywords by authors. Here TO = total occurrences and TLS= total link strength

Table IX. Country Pairs in the *MAJ*'s Collaboration Network

1986-1995	1996-2005	2006-2015	2016-2019
Australia⇔United States (2)	Australia⇔United Kingdom (6)	Australia⇔Malaysia (7)	Malaysia⇔Yemen (3)
United Kingdom⇔United States (2)	United Kingdom⇔United States (6)	Australia⇔United States (4)	Belgium⇔Netherlands (2)
Georgia⇔United States (1)	Hong Kong⇔United Kingdom (5)	Belgium⇔Italy (3)	Egypt⇔Tunisia (2)
Germany⇔United Kingdom (1)	China⇔United Kingdom (4)	Belgium⇔United Kingdom (3)	Egypt⇔United Kingdom (2)
India⇔Singapore (1)	Saudi Arabia⇔United Kingdom (4)	Egypt⇔United Kingdom (3)	Malaysia⇔Saudi Arabia (2)
New Zealand⇔United Kingdom (1)	Australia⇔Malaysia (3)	Indonesia⇔Malaysia (3)	Saudi Arabia⇔Yemen (2)
Singapore⇔United States (1)	China⇔Hong Kong (3)	Kuwait⇔United States (3)	Taiwan⇔United States (2)
	Malaysia⇔United Kingdom (3)	Malaysia⇔United Kingdom (3)	
	Oman⇔United States (3)	Australia⇔New Zealand (2)	
	Australia⇔China (2)	Canada⇔United States (2)	
	Australia⇔Ireland (2)	China⇔Hong Kong (2)	
	Bangladesh⇔United Kingdom (2)	China⇔United States (2)	
	Canada⇔United States (2)	Finland⇔United Kingdom (2)	
	Georgia⇔United States (2)	Greece⇔United Kingdom (2)	
	Germany⇔United States (2)	Grenada⇔United States (2)	
	Greece⇔United Kingdom (2)	Italy⇔United Kingdom (2)	
	Singapore⇔United States (2)	Japan⇔United States (2)	
		New Zealand⇔Portugal (2)	
		New Zealand⇔United States (2)	
		South Africa⇔United Kingdom (2)	
		South Africa⇔United States (2)	
		Taiwan⇔United States (2)	

Note: This table represents the number of articles co-authored by country pairs. The number of articles in each pair is shown in brackets. For the first decade, all country pairs were included as there were a smaller number of country pairs. For the rest of the periods, a cut-off of at least two co-authored documents was used.

Table X. Network Centrality for Countries Contributing to the *MAJ*

Country	DC	Country	WDC	Country	BC	Country	EC
United Kingdom	29	United Kingdom	82	United Kingdom	0.003963	United States	1
United States	29	United States	70	Canada	0.002439	United Kingdom	0.613376
Australia	20	Australia	49	Belgium	0.000915	Netherlands	0.123144
Netherlands	8	Malaysia	20	China	0.000915	Tunisia	0.081879
Canada	8	China	19	Netherlands	0.000732	France	0.03999
Belgium	7	Hong Kong	16	France	0.000732	Germany	0.03999
China	6	Belgium	14	Hong Kong	0.00061	United Arab Emirates	0.032384
Tunisia	6	Netherlands	13	Italy	0.00061	Taiwan	0.032384
Hong Kong	5	Canada	12	New Zealand	0.00061	South Africa	0.027874
Italy	5	Italy	10	Sweden	0.00061	Saudi Arabia	0.027874

Note: DC= Degree of centrality, WDC= weighted degree of centrality, BC = betweenness centrality and EC= eigenvector centrality

Table X. Network Centralities for *MAJ* Authors

Author	DC	Author	WDC	Author	BC	Author	EC
Cooper B.J.	7	Cooper B.J.	19	Cooper B.J.	0.009292	Rezaee Z.	1
Gavin T.A.	7	Leung P.	17	Gavin T.A.	0.006388	Reinstein A.	0.741967
Reinstein A.	6	Gavin T.A.	13	Reinstein A.	0.005226	Siegel P.H.	0.698024
Leung P.	5	Lander G.H.	10	Burnaby P.	0.005226	Martinov-Bennie N.	0.439991
Lander G.H.	5	Reinstein A.	9	Leung P.	0.001742	Leung P.	0.360631
Hass S.	4	Hass S.	8	Hass S.	0.001742	Lander G.H.	0.162727
Bierstaker J.L.	4	Burnaby P.	8	Lander G.H.	0.000581	Sarens G.	0.154313
Rezaee Z.	3	Bierstaker J.L.	6	Bierstaker J.L.	0	Sumners G.E.	0.104072
Burnaby P.	3	Rezaee Z.	4	Rezaee Z.	0	Hass S.	0.097555
Martinov-Bennie N.	2	Sumners G.E.	4	Brody R.G.	0	Gavin T.A.	0.067069

Note: DC= degree of centrality, WDC= weighted degree of centrality, BC = betweenness centrality and EC= eigenvector centrality

Table XI. Number of articles with muliple authors in the *MAJ*

Period	Number of articles with authors					% with single author
	1	2	3	4	5	
1986-1995	157	84	28	2	2	58%
1996-2005	233	203	97	22	1	42%
2006-2015	106	168	137	26	9	24%
2016-2019	22	61	55	18	4	14%

Note: This table presents the number of articles and authors in the *MAJ* in each period .

Table XII. Publication summary for the *MAJ* between 1986 and 2019

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019	Overall
TP	99	174	223	333	250	196	160	1435
TCP	44	130	177	314	237	188	114	1204
TC	119	772	1741	5787	5166	2030	445	16060
TC/TP	1.20	4.44	7.81	17.38	20.66	10.36	2.78	11.19
TC/TCP	2.70	5.94	9.84	18.43	21.80	10.80	3.90	13.34
Most Prominent Themes	Internal Auditing Management	Auditor	Accounting	Audit	Auditor	Audit Fee	Corporate Governance Cost	Auditing
	Auditor	Internal Audit	Internal Audit	Role	Determinant	Corporate Governance Earnings Management Determinant	Earnings Management Economy	Auditors
	Internal Audit	Ethics	Hong Kong	Quality	Corporate Governance Earnings Management Sarbanes Oxley Act	Malaysia	Auditor	Corporate Governance Internal Audit
	Internal Auditor	Internal Auditors Audit Committee	ISO	Internal Auditor				Financial Reporting
Most Prolific Authors	Vinten, G. Gavin, T.A.	Sumners, G.E. Gavin, T.A.	Doost, R.K. Smith, M.	Doost, R.K. Watson, M.	Cooper, B.J. Leung, P.	Leung, P. Martinov-Bennie, N.	Azim, M.I. Khelif, H.	Doost, R.K. Vinten, G.
	Sumners, G.E. Klinefelter, D.S.	Rezaee, Z. Greenawalt, M.B.	Reinstein, A. Lee, S.F.	Brierley, J.A. Gunasekaran, A.	Hass, S. Hussainey, K.	Cooper, B.J. Sarens, G.	Hashim, H.A. Yapa, P.W.S.	Smith, M. Cooper, B.J.
	Wilson, J.A. Wood, D.J.	Vinten, G.	Vinten, G.	Vinten, G.	Burnaby, P.	Soh, D.S.B.	Roberts, C. Waweru, N.M.	Leung, P.
Most Prolific Institutions	City University of London	Louisiana State University	Clemson University	Florida International University	Deakin University	Macquarie University	RMIT University	RMIT University
	Louisiana State University	Middle Tennessee State University	Wayne State University	Bath Spa University	Bentley College	Deakin University	University of Sfax	Clemson University

	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2015	2016-2019	Overall
	Florida International University The University of Tennessee System University of East Anglia	Utah State University Massey University Manawatu University of Miami	University of South Australia Southampton Solent University Middle Tennessee State University	Queensland University of Technology QUT RMIT University Hong Kong Baptist University	RMIT University Universidade de Macau University of Stirling	Griffith University Université Catholique de Louvain Curtin University	Kent State University Swinburne University of Technology Qatar University	Deakin University Florida International University City University of London
Most Prolific Countries	United States	United States	United States	United States	United States	United States	United States	United States
	United Kingdom	United Kingdom	United Kingdom	United Kingdom	Australia	Australia	Australia	United Kingdom
	Australia	Australia	Australia	Australia	United Kingdom Malaysia New Zealand	United Kingdom Malaysia Canada	United Kingdom	Australia
	India Hong Kong New Zealand	New Zealand Hong Kong	China Hong Kong	Hong Kong Malaysia			Canada Tunisia	Malaysia Hong Kong

Note: TP= total publications, TCP= total cited publications, TC= total citations, TC/TP= cites per publication, and TC/TCP = Total citations per total cited publications

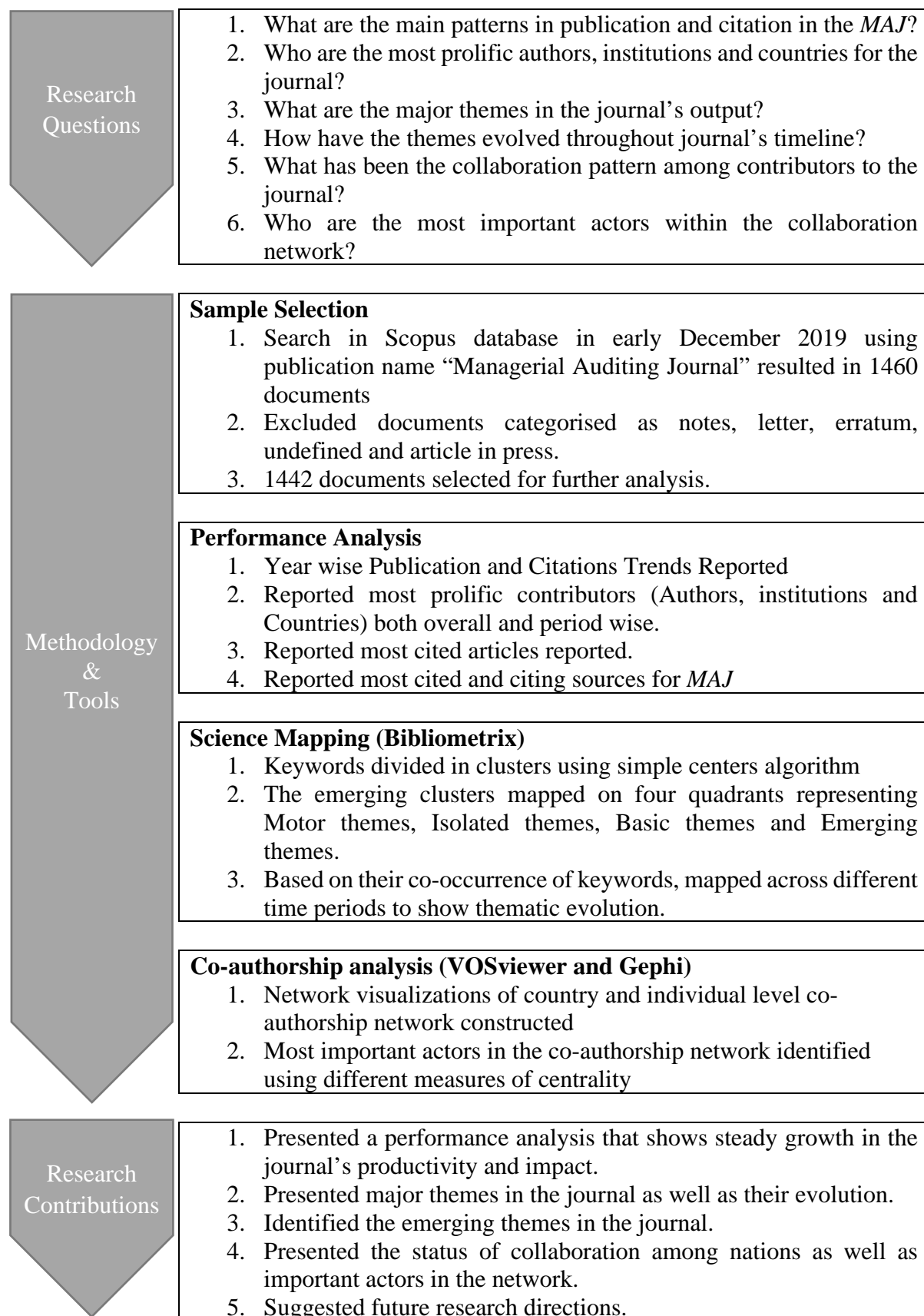


Figure 1. This figure depicts the experimental design of the study.

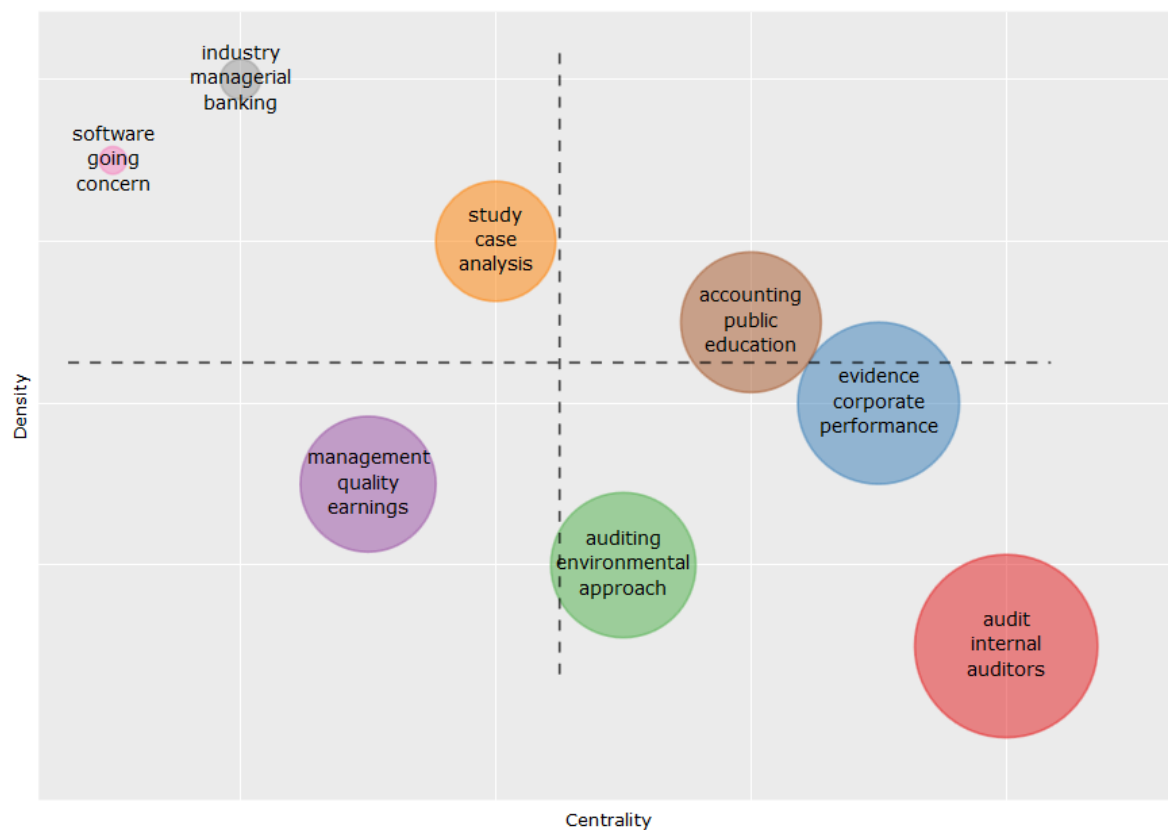


Figure 2. This figure depicts the strategic diagram of clusters of title words based on their centrality and density.

Note: Here, each circle represents keyword-clusters which in turn represents a theme. These themes are classified in four categories: *Isolated Themes* (Upper-Left quadrant), *Motor Themes* (Upper-Right Quadrant), *Basic or Traversal Themes* (Lower-Right Quadrant) and *Emerging or Declining Themes* (Lower-Left Quadrant)

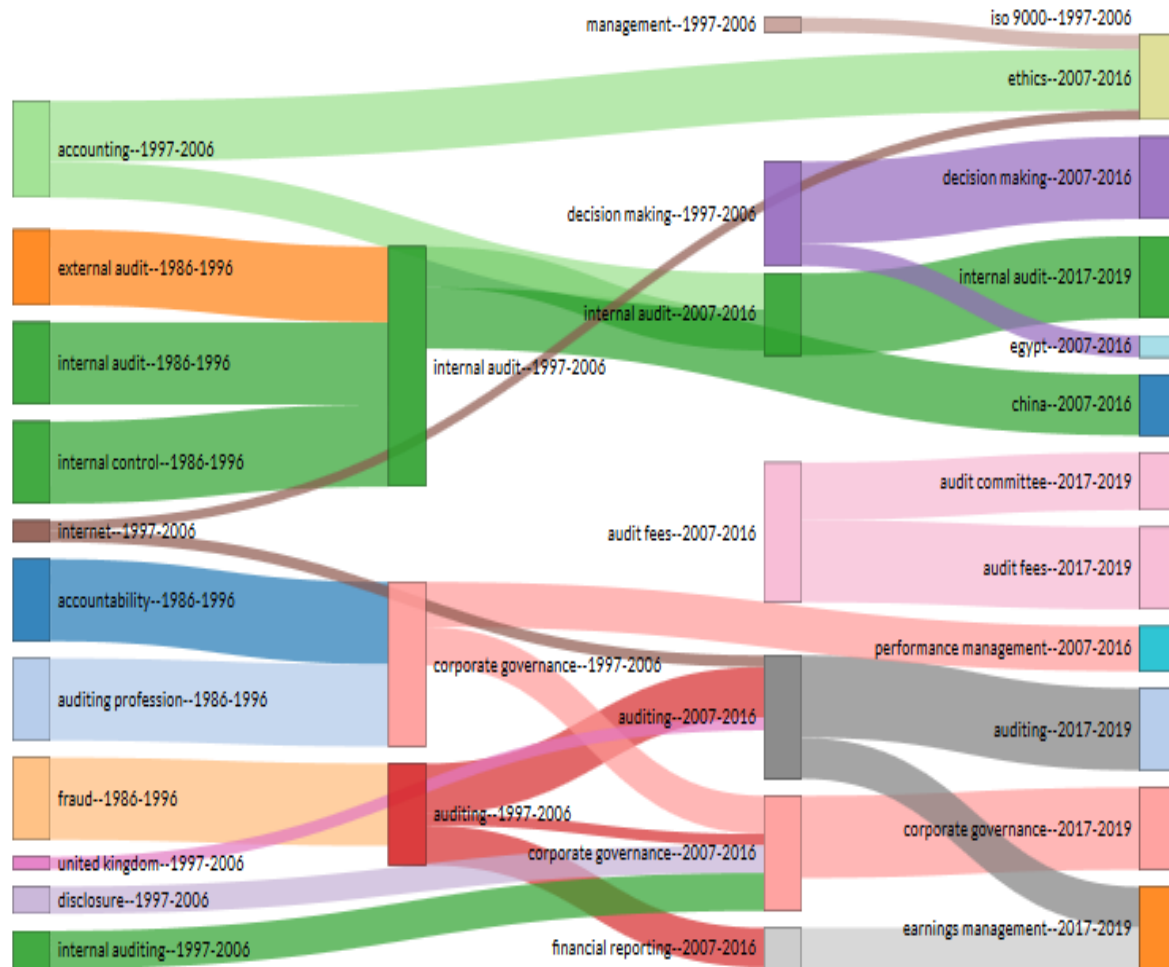


Figure 3. This figure depicts thematic evolution of the journal using author keywords

Note: This figure shows how thematic clusters have split and fed into other thematic clusters throughout different periods between 1986 and 2019. Each block represents a thematic cluster named according to the most regularly occurring keyword and the period of its existence.

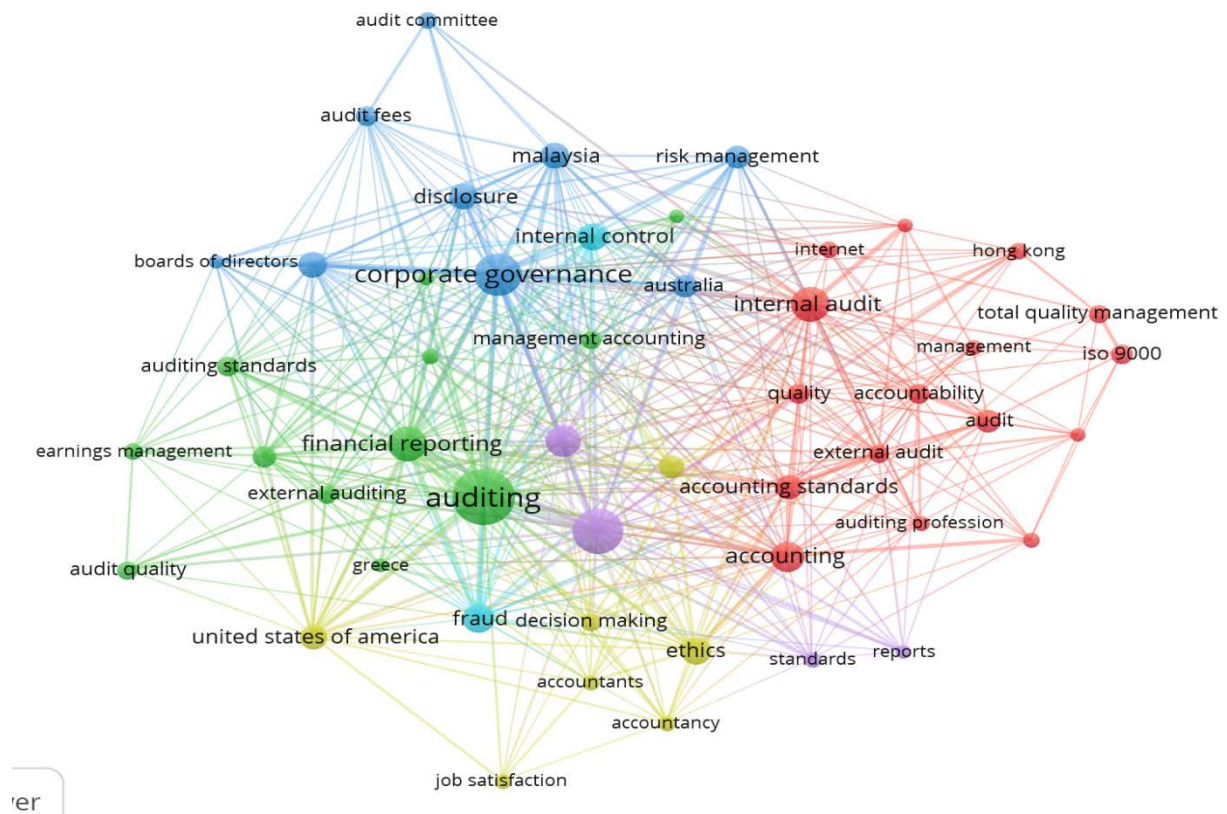


Figure 4. Author Keyword Co-occurrence network using VOSviewer

Note: This figure presents the visualization of keyword network of top 50 author keywords using VOSviewer

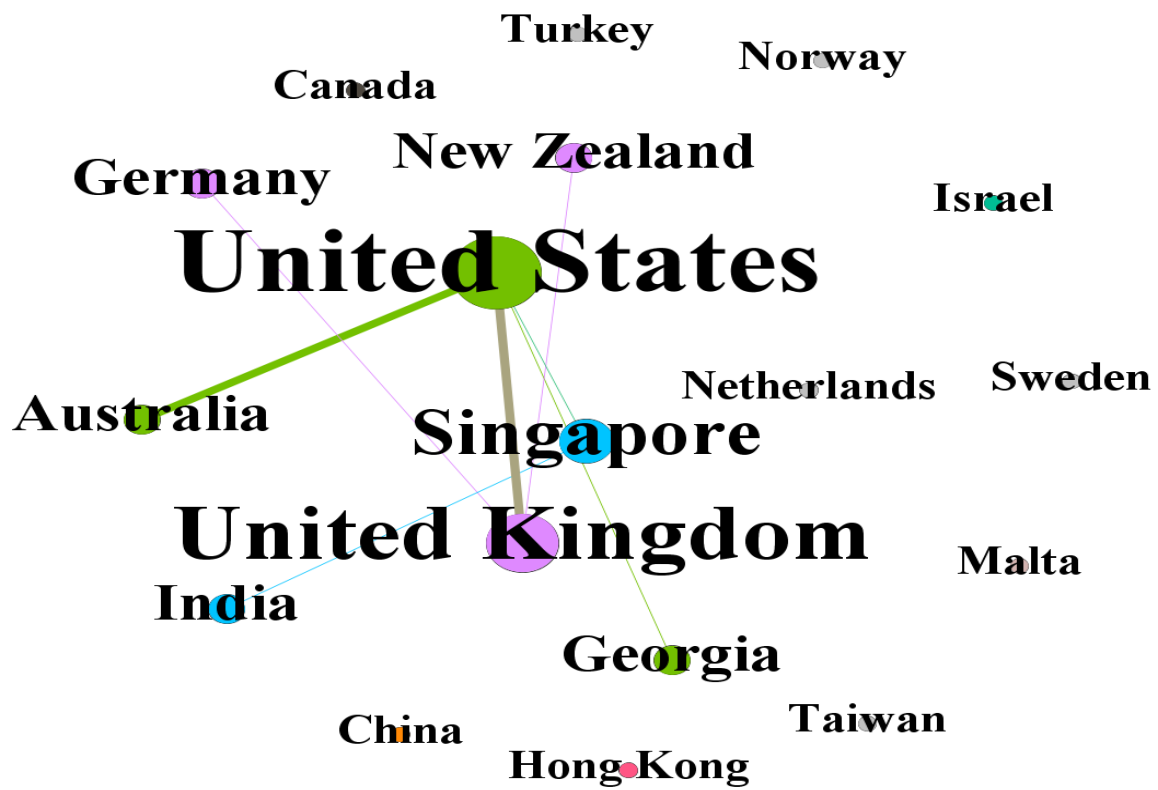


Figure 5a. This figure depicts the country-wise co-authorship network for the *MAJ* between 1986 and 1995.

Note: The size of the bubbles reflects connectivity with other nodes while the links indicate co-authorship.



Figure 5c. This figure depicts the country-wise co-authorship network for the *MAJ* between 2006 and 2015.

Note: The size of the bubbles reflects connectivity with other nodes while the links indicate co-authorship.

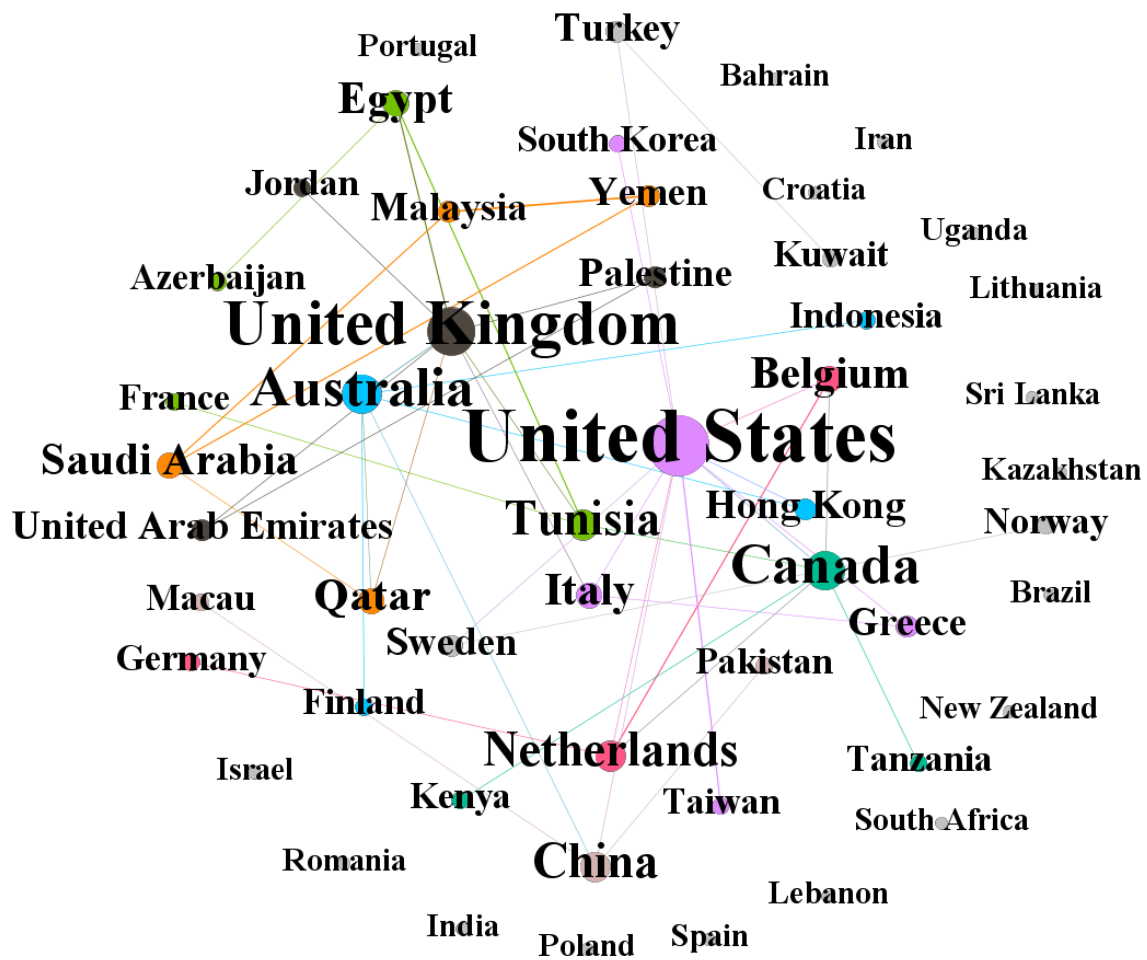


Figure 5d. This figure depicts the country wise co-authorship network in the *MAJ* between 2016 and 2019.

Note: The size of the bubbles reflects connectivity with other nodes while the links indicate co-authorship.

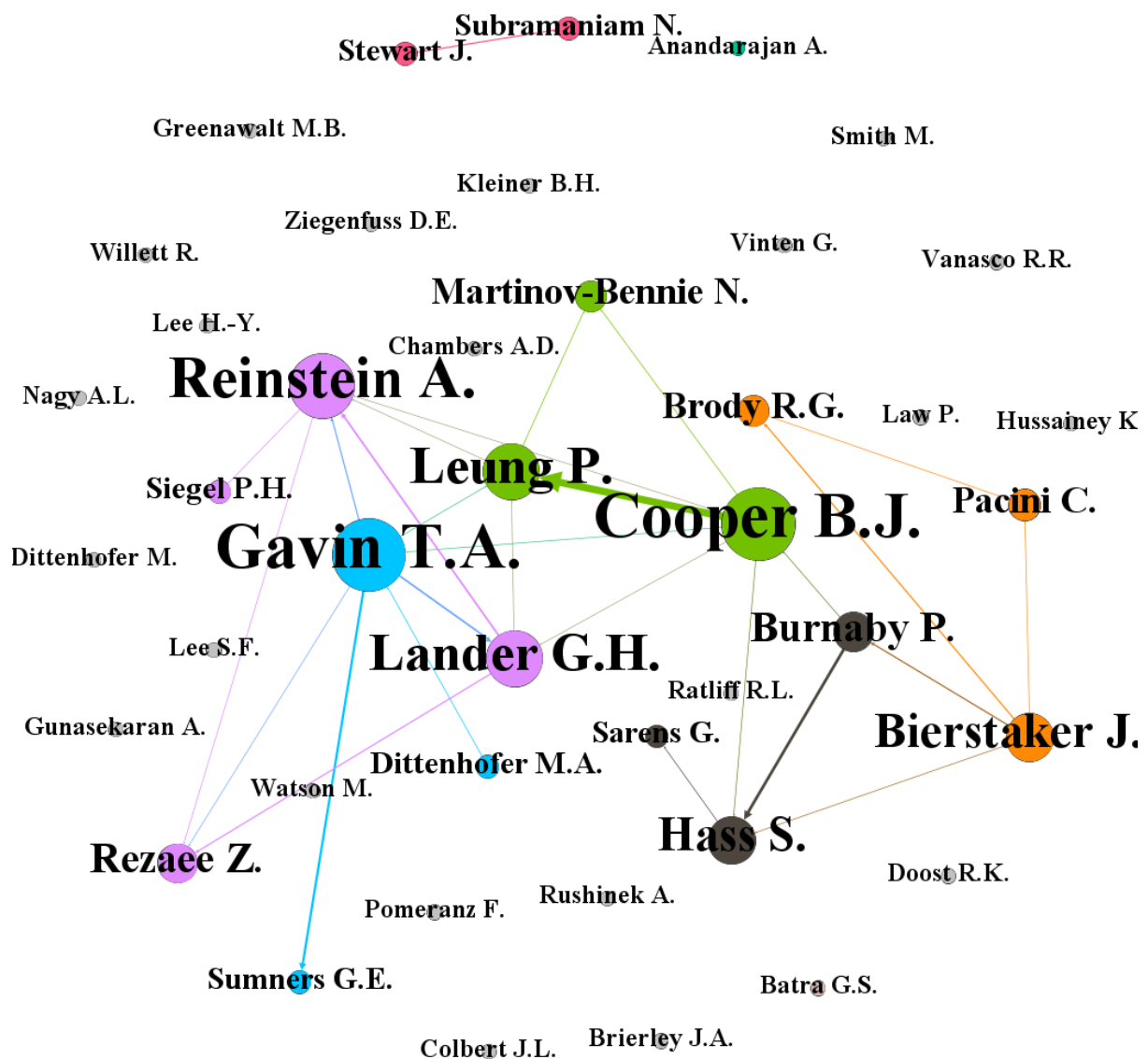


Figure 6. This figure depicts the co-authorship network of *MAJ* authors

Note: The size of the node indicates greater connectedness while the size of link relates to the frequency of co-authorship. The threshold for inclusion is five publications

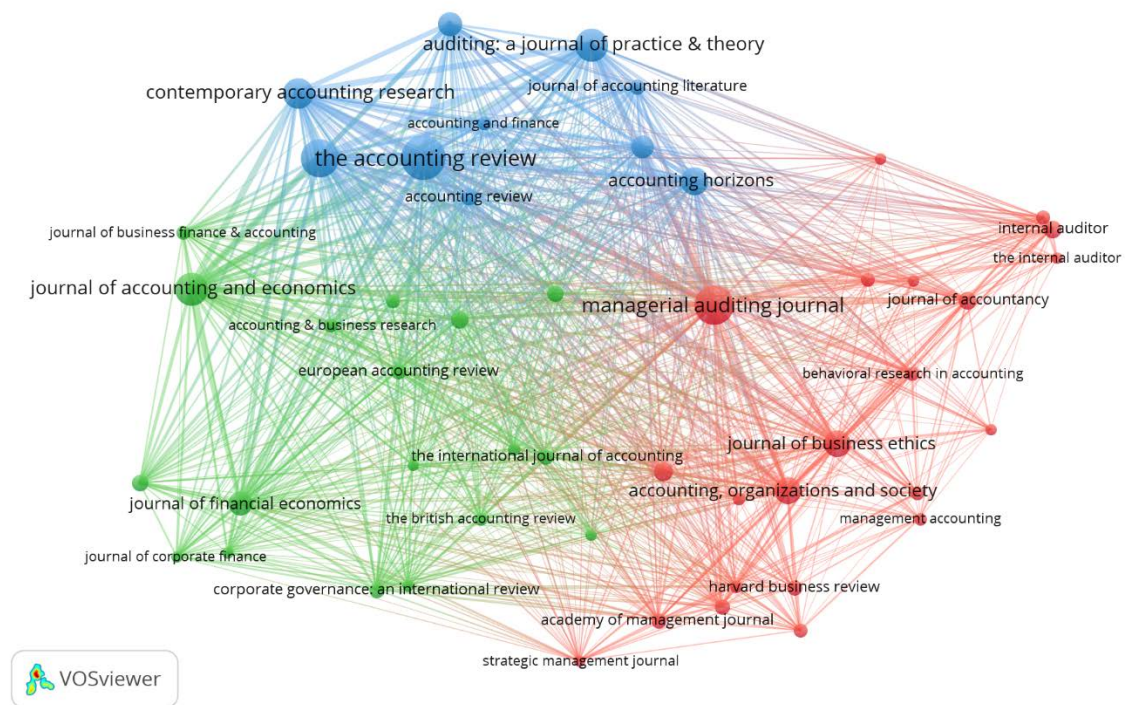


Figure 7. Co-citation of journal using VOSviewer

Note: This figure depicts the co-citation network for journals cited at least 100 times by *MAJ* authors.